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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,556	09/24/2007	Alexander Golitschek Edler Von Elbwart	L7725.06124	5571

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EXAMINER

D AGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
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2617

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,556	Applicant(s) GOLITSCHKE EDLER VON ELBWART ET AL.	
	Examiner Stephen M. D'Agosta	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18, 22-30 and 34 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 18, 22-30 and 34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 7-22-2010 have been fully considered but they are not persuasive.

1. The specification changes are acknowledged and approved. The figure changes are acknowledged and approved (eg. they have been amended to reflect that they are Prior Art).

2. The examiner believes **novelty** is found if the applicant amends as follows:

Claim 18 + claim 22 + claim 27 + claim 29 + claim (24 or 25 or 26 or 30)

- *adds together 5 claims (only one of 24-26 or 30 with the others)*

- *this would set the claims apart from the prior art*

3. The applicant argues that Holtzman doesn't teach "minimum number of allocation units schedule for a user/service in a scheduling frame to meet a resource constraint of the communication unit". The examiner must give each claim its most broadest, reasonable interpretation and notes that the claim is interpreted as having a schedule function to support multiple mobile unit data rate needs/request whereby a resource need can be a data rate, type of service, etc.. Hence the prior art clearly teach scheduling of data rates for multiple mobile users. Note that the "only assigning if the minimum resource allocation can be assigned" reads on an initial data rate that can be modified which is taught by the prior art (eg. at least a minimum is assigned which can be equal-or-more than the minimum requested).

4. Note that Havinga was used to show i) data scheduling and ii) power expended in scheduling (as per claim 19, etc). Note that claim 18 is slightly different and could have been restricted but the examiner grouped them together and added Havinga for both purposes.

5. Klein clearly was added to show "setting of data rate" in figure 2, #222 which also requires the system to determine how much resources are i) available and ii) desired by the mobile (which reads on the claim). Even Hoagland teaches a process flow (figure 4) whereby the network can determine the initial/maximum data rate(s) for a mobile and adjust as necessary. Hence the examiner believes that the prior art clearly teaches the concepts of the claims.

6. The examiner notes that an "allocation unit" can be either a bit, frame, etc.. It is not defined in the claim and thusly the examiner believes his prior art reads on the claim.

7. The applicant argues (page 14) that the newly amended section is not taught. The examiner disagrees since his prior art teaches (at least) determining a data rate that can be used to support a user/service and assigning that rate/channel. Perhaps the applicant should consider using more "empirical" words/phrases regarding what an allocation unit is and how it is determined/assigned. As written, the claim puts forth the concept of quality of service (QoS) bandwidth/channel assignment as based on the available resources which is a very mature technology.

8. With regard to claim 22, the examiner notes that the claim is broadly interpreted as putting forth a concept of calculating the processed (or transmitted) bits in relation to the processing-and-operating power spent during the transmission in the mobile device.

As seen, Holtzman teaches determining the previously used and predicted power requirements to transmit data to the mobiles, see figure 4, which reads on determining operating power "spent/used" during the transmission and if it is available as based on an "efficiency threshold" since the data rate will be modified if the power requirement/threshold is exceeded, see figure 5 steps 542-546. Havinga shows the amount of power used in various modes, eg. off, sleep, idle, transmit and receive, pg 7).

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Hence one skilled can determine the power spent during ANY mode, eg. off, sleep, idle, transmit in relation to how much data was sent (as based on the scheduled data rate).

The applicant's concept of a "ratio" reads on the prior art concepts of determining an initial data rate and then modifying the rate to a "new data rate" if/when it is deemed necessary. Clearly the prior art teaches mathematical functions (averaging, etc.) which are in effect a "ratio" and are used to modify (at least) the data rate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18, 21-29 and 34 rejected under 35 U.S.C. 103(a) as being unpatentable over Holtzman and further in view of Havinga* and {Klein or Hoagland}. (**from IDS*)

As per **claims 18-19, 33-34**, Holtzman teaches a method for performing a scheduling algorithm in a scheduler of a wireless communication system (Abstract teaches scheduled data transmissions), comprising the steps of:

obtaining from a resource parameter that, ~~wherein said minimum resource parameter indicates a minimum number of allocation units scheduled for a user or service (See Holtzman figure 5, #514, #522, #532, #544) -resources allocated to the communication unit~~ in a scheduling frame to meet a resource constraint scheduling allocation units for radio access to the communication unit in a scheduling frame in accordance with the resource parameter of the communication unit and (Holtzman teaches calculating possible data rate(s) for each data user, figure 5 step #514 and

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scheduling of transmission for each mobile, see figure 7 which is the "scheduler" and C15, L43 to C16, L35) and

then determining the scheduling, in a scheduling frame, resources of the data transmission and power for that transmission, #542-546)

but is silent on obtaining the parameter from a communication unit (eg. as a request) and a "minimum" resource parameter AND, wherein the minimum resource parameter represents a minimum number of allocation units scheduled for a user or a service in a scheduling frame.

Holtzman teaches the base station determining the data rate for a user but one skilled understands that a user may request a "standard channel" (eg. for an outgoing phone call) whereby said standard channel would be 9600bps and broadly reads on a "resource parameter" and note that the "data user is initialed to a particular data rate" broadly reads on sending a scheduling frame to the user which defines a minimum resource parameter in a scheduling frame:

"Prior to scheduling transmission to a new data user, the throughput $T_i(0)$ of the data user is initialized to a particular data rate (e.g., $T_i(0)=9.6$ Kbps), at #512. For each data user desiring data transmission.." C12, L32-40

Havinga teaches energy efficient MAC Protocol scheduling (title) that can support many types of data traffic (pg 1, col 2, 1st full para) whereby the energy consumption is significantly reduced (Col 2, last para). He also discusses power consumption in various modes and during data transmission (pg 2, Cols 2-3 and table on page 7). Furthermore, Havinga clearly teaches "traffic scheduling" (Section 3) whereby the mobile units receive control data from the scheduler as to when they will transmit and the data rate (Note that it uses frame scheduling).

Both Klein or Hoagland teach communication unit requests and various minimum resource parameters that can be identified to adapt the unit's ability to transmit/receive:

i. **Klein** teaches controlling wireless access for a plurality of voice/data users whereby a minimum gain threshold is set/used to influence the data rate given to each mobile (Abstract, figure 2 steps 214-218 and 222). Note that the examiner interprets

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that the channel would be inherently allocated as based on either a request from the user (Eg. to make an outgoing call) or for an incoming call to the user. Similarly, a specific data rate can also be requested by the mobile for a specific type of service (voice, data, voice-and-data, etc). Klein clearly teaches "setting data rate for candidate in figure 2, #222 which can be interpreted as determining/scheduling of data transmission).

ii. Lastly, the examiner puts forth **Hoagland** who teaches the mobile device specifically requesting a data rate (increase/decrease) which also reads on a) the communication device requesting step and b) a minimum resource parameter and that the data rate/flow can be continually monitored and modified/scheduled (see steps 406, 408 and 410):

A method in a wireless communication system for communicating data from a base station to a mobile unit at a data transfer rate, said method comprising steps of: computing a moving average of said data transfer rate; ascertaining a supportable data rate for receiving data by said mobile unit; transmitting to said base station a maximum data rate request so as to maintain said moving average of said data transfer rate substantially unchanged, said maximum data rate being equal to or lower than said supportable data rate. **(claim 1)**

It would have been obvious to one skilled in the art at the time of the invention to modify Holtzman, such that it obtains the parameter from a communication unit (eg. as a request) and is a "minimum" resource parameter, to provide means for the mobile to request a change whereby said resource parameter can be highly specific, such as a data rate, power level, etc..

~~**With further regard to claims 19 and 33,** at least Holtzman and Klein teach concepts that read on "...determination of the power expended for processing of the scheduling frame.." (eg. at least Klein teaches using a gain threshold and power level, which reads on the claim. Similarly Holtzman teaches determining the previously used and predicted power requirements to transmit data to the mobiles, see figure 4, which reads on determining if the power is available as based on an "efficiency threshold" since the data rate will be modified if the power requirement/threshold is exceeded, see figure 5 steps 542-546).~~

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As per **claims 21 and ~~36~~**, the combo teaches claim 18/19, wherein the minimum resource parameter represents a minimum number of information bits per scheduling frame for a user or a service (the prior art teaches a standard/typical channel, eg. 9600bps and also changes to the power and data rate, see Hoagland/Klein and Havinga teaches an energy efficient MAC protocol which takes into account the amount of data per frame).

As per **claims 22 and ~~37~~**, the combo teaches claim 18/19, wherein the minimum resource parameter represents a minimum ratio of processed information bits to the expended processing and operating power spent during radio access in the communication unit (Holtzman teaches determining the previously used and predicted power requirements to transmit data to the mobiles, see figure 4, which reads on determining operating power "spent/used" during the transmission and if it is available as based on an "efficiency threshold" since the data rate will be modified if the power requirement/threshold is exceeded, see figure 5 steps 542-546. Havinga shows the amount of power used in various modes, eg. off, sleep, idle, transmit and receive, pg 7).

As per **claims 23 and ~~38~~**, the combo teaches claim 18/19, wherein the minimum resource parameter represents a sufficient quantity to exceed a power efficiency threshold in a scheduling frame (at least Klein teaches using a gain threshold and power level, which reads on the claim. Similarly Holtzman teaches determining the previously used and predicted power requirements to transmit data to the mobiles, see figure 4, which reads on determining if the power is available as based on an "efficiency threshold" since the data rate will be modified if the power requirement/threshold is exceeded, see figure 5 steps 542-546).

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As per **claims 24-25 and ~~39-40~~**, the combo teaches claim 18/19, wherein the minimum resource parameter is signaled periodically from the communication unit to the scheduler OR from a request by the scheduler (at least Hoagland teaches periodic requests from the mobile to change its data rate. Note that Holtzman/Hoagland provide for the BTS to schedule the resource parameter change(s) and Havinga teaches an energy efficient scheduling MAC).

As per **claims 26 and ~~41~~**, the combo teaches claim 18/19, **but is silent on** wherein the signaling of the minimum resource parameter is initiated by the communication unit upon fulfillment of power management conditions.

The claim is given a broad/reasonable interpretation such that “fulfillment of power management conditions” means that the mobile is instructed/commanded by the BTS to set its power to a certain level and then commence with data transmission.

a. Power control is well known in the art and can be either closed-loop or open-loop control (eg. mobile feedback or no feedback).

b. Klein clearly teaches the BTS sending power instructions to the mobile so that an optimal power level is set (eg. either before or during voice/data transmission), see at least claims 2-3 and 5.

Havinga teaches various modes the mobile will cycle through and their various power usages (pg. 7)

It would have been obvious to one skilled in the art at the time of the invention to modify the combo, such that the signaling of the minimum resource parameter is initiated by the communication unit upon fulfillment of power management conditions, to provide means for the mobile to first comply with the BTS's power command before transmitting (so as not to inject interference into the network if the mobile's power is too high).

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As per **claims 27 and ~~42~~**, the combo teaches claim 18/19, wherein the scheduling step includes considering in addition at least one of the following scheduling parameters channel condition, amount of data available for transmission, quality of service, delay, data rate and carrier to interference ratio (the prior art teaches determining channel conditions, type or amount of data (eg. voice, video), QoS since voice/video have different requirements, interference conditions/SNR, etc.. Also see Havinga who teaches similar parameters, pg 1, col 2).

As per **claims 28 and ~~43~~**, the combo teaches claim 18/19, wherein the scheduling frame has at least one of a time division, frequency division or code division frame structure (the prior art teach various cellular protocols, including at least FDMA and CDMA, see Hoagland Column 1. Havinga teaches support for TDMA and CDMA, pg. 3, col 1).

As per **claims 29 and ~~44~~**, the combo teaches claim 18/19, wherein the allocation units have a quantity of either one of transmittable information bits, internet protocol packets, code blocks or modulation symbols (the prior art teach at least “data rates” which infer information bits – eg. bits per second – and Hoadland teaches High Rate Data which can be data/packets).

As per **claims 30 and ~~45~~**, the combo teaches claim 18/19, wherein the minimum resource parameter is signaled by the communication unit on a separate control channel associated to the data channel over which the allocation units are transmitted (the use of a CONTROL CHANNEL is well known and taught by Holtzman, C5, L32-35, and would be used to provide control to the mobile. Similarly the “control data” could also be embedded in the user data in a user’s dedicated voice/data channel).

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinsong Hu can be reached on 571-272-3965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen M. D'Agosta/
Primary Examiner, Art Unit 2617